



A.D. 1823 . . . . . N° 4840.

S P E C I F I C A T I O N

OF

JAMES SURREY.

APPARATUS, APPLICABLE TO COKE OVENS,  
FOR THE ECONOMIZATION OF FUEL.

L O N D O N :

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**Apparatus, applicable to Coke Ovens, for the  
Economization of Fuel.**

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**SURREY'S SPECIFICATION.**

**TO ALL TO WHOM THESE PRESENTS SHALL COME,** JAMES SURREY, of Battersea, in the County of Surrey, Miller, sends greeting.

**WHEREAS** His present Majesty King George the Fourth, by His Letters Patent under the Great Seal of Great Britain, bearing date at Westminster, 5 the Fourth day of September, in the fourth year of His reign, did, for Himself, His heirs and successors, give and grant unto the said James Surrey His especial licence that he, the said James Surrey, his executors, administrators, and assigns, or such others as the said James Surrey, his executors, administrators, or assigns, should at any time agree with, and no others, from time to 10 time and at all times during the term of years therein expressed, should and lawfully might make, use, exercise, and vend, within England, Wales, and the Town of Berwick upon Tweed, his Invention of "**A NEW METHOD FOR THE APPLYING HEAT FOR THE PRODUCING STEAM, AND FOR VARIOUS OTHER PURPOSES, WHEREBY THE EXPENCE OF FUEL WILL BE LESSENERD;**" in which said Letters 15 Patent there is contained a proviso obliging the said James Surrey, by an instrument in writing under his hand and seal, particularly to describe and ascertain the nature of his said Invention, and in what manner the same is to be performed, and to cause the same to be inrolled in His Majesty's High Court of Chancery within two calendar months next and immediately after the 20 date of the said recited Letters Patent, as in and by the same, reference being thereunto had, will more fully and at large appear.



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*Surrey's Improvements in Applying Heat for the Production of Steam, &c.*

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**NOW THEREFORE BE IT KNOWN**, that in compliance with the said proviso, the said James Surrey doth hereby declare that the nature of his said Invention, and the manner in which the same is to be performed, is described and ascertained in the following explanation thereof, that is to say:—

The Invention of the said James Surrey consists in bringing into use the 5 heat extracted from coal in the burning and manufacture of coke, by applying the same for the production of steam for steam engines, and other purposes, in manner following, that is to say:—As many coke ovens as may be necessary by the heat thereof to insure the quantity of steam required being erected in the usual or any other convenient way, let an artificial search be made in each 10 as high as the coals when charged, and run on the top of the said artificial search a rim or curb of iron, or other substance of sufficient thickness to retain the heat extracted from the coal or coke; then place in each of the said ovens two tubes or pipes of iron or other metal, one on each side thereof, on the top of the artificial search, one end of each of the said pipes or tubes to come out at 15 the front of the oven, with a flange for cleansing, and the other end thereof to run out at the back or other convenient part of the oven, a sufficient space being left between the said two pipes or tubes or elsewhere, as convenient, for the smoke, fire, or heat to escape, instead of coming out at the oven's mouth or stock; and if the ovens be sufficiently large to admit thereof, without inter- 20 fering with the burning of the coke, other pipes or tubes may be introduced in like manner between the coke and the crown of the oven, and the several pipes or tubes above mentioned must be made to communicate with the main reservoir or boiler of the engine or other works. The main reservoir or boiler being charged in the usual way, and so as to keep the before-mentioned pipes 25 or tubes always full of water, steam will be generated and pass to the main reservoir or boiler for any purpose required. Care should be taken so to place the pipes or tubes in the ovens that the draft be not checked, and that they may be taken out at the front or back of the oven, if required, and the said pipes or tubes should be independant of the ovens, and be so 30 placed that the spring of the oven will be behind the same. The fire in passing out of the ovens may be directed through a flue (and which flue may be conveniently and most beneficially made by carrying over the crown of the oven a second crown or arch of iron, brick, or other substance capable of confining and retaining the heat), and such flue may be filled with other pipes or tubes, to 35 be so placed as to receive the greatest possible action of the fire passing through the flue, and the last-mentioned pipes or tubes being also made to communicate with the general reservoir or boiler, and being kept filled with water, as before mentioned, an additional quantity of steam will be generated by means of the same



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fire or heat, and without any additional consumption of fuel. If the flame of one oven should be found insufficient to consume the smoke of the other, a damper or register may be used to stop the smoke from passing direct into the flue, and a communication made from one oven to the other by means by a  
 5 pipe or aperture (also with a damper or register) to take the smoke of either oven alternately through the other when sufficiently hot to consume the same, thereby ensuring a convenient method of consuming the whole of the smoke, and converting the same into heat or flame, to be used or applied as before mentioned.

10 In witness whereof, the said James Surrey hath hereunto set his hand and seal, this Third day of November, in the year of our Lord One thousand eight hundred and twenty-three.

JAMES (L.S.) SURREY.

Signed and sealed in the presence of

15 CHAS<sup>S</sup> DRUCE, jun<sup>r</sup>,  
 10, Billiter Square, London.

AND BE IT REMEMBERED, that on the same Third day of November, in the year above mentioned, the aforesaid James Surrey came before our Lord the King in His Chancery, and acknowledged the Specification aforesaid,  
 20 and all and everything therein contained, in form above written. And also the Specification aforesaid was stamped according to the tenor of the Statute in that case made and provided.

J. S. HARVEY.

Inrolled the same Third day of November, in the year above written.

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